CLAIMS

WHAT IS CLAIMED IS:

1. A chimeric pathogenic organism wherein virulent transformation of the organism is controlled in the wild-type organism by binding of the I domain of a surface integrin-like protein to a cell, said chimeric organism comprising a chimeric surface integrin-like fusion protein in which the I domain is replaced by an antibody fragment that binds a disease-associated antigen on a cell,
wherein binding of the antibody fragment to the disease-associated antigen triggers virulent transformation of the chimeric pathogenic organism so as to cause the organism to infiltrate the cell.

2. The chimeric pathogenic organism of claim 1, wherein the antibody fragment is a single chain antibody.

3. The chimeric pathogenic organism of claim 1, wherein the antibody fragment binds to an antigen on a tumor cell.

4. The chimeric pathogenic organism of claim 3, wherein the antigen is contained in an abnormal surface protein of the tumor cell.

5. The chimeric pathogenic organism of claim 3, wherein the antigen is selected from the group consisting of GAG-72, ERBB2, EGP-2, CEA, CD44, I-FR, neu, and the Lewis (Y) tumor associated antigen.

6. The chimeric pathogenic organism of claim 3, wherein the tumor cell is selected from the group consisting of adenocarcinoma of colon, ovary or breast; cervical nonmucinous ovarian carcinoma; and breast, ovarian , colorectal, and pancreatic cancers.

7. A chimeric pathogenic *C. albicans* comprising:

an integrin1 (INT1) fusion protein in which the I domain is replaced by an antibody fragment that binds to a disease-associated antigen on a diseased cell,

a disabled wild-type high affininity iron transporter (CAFTR) gene, and

a DNA construct comprising a wild-type CAFTR gene under the control of an enhanced filamentous growth protein (EFG1p) response element, wherein binding of the antibody to the disease-associated antigen triggers expression of the CAFTR gene in the DNA construct and filamentous transformation in the chimeric pathogenic *C albicans*.

8. The chimeric pathogenic *C. Albicans* of claim 7, wherein the antibody fragment is a single chain antibody.

9. The chimeric pathogenic *C. Albicans* of claim 7, wherein the antibody fragment binds to an antigen on a tumor cell.

10. The chimeric pathogenic *C. Albicans* of claim 9, wherein the antigen is contained in an abnormal surface protein of the tumor cell.

11. The chimeric pathogenic *C. Albicans* of claim 9, wherein the antigen is selected from the group consisting of GAG-72, ERBB2, EGP-2, CEA, CD44, I-FR, neu, and the Lewis (Y) tumor associated antigen.

12. The chimeric pathogenic *C. Albicans* of claim 9, wherein the tumor cell is selected from the group consisting of adenocarcinoma of colon, ovary or breast; cervical nonmucinous ovarian carcinoma; and breast, ovarian , colorectal, and pancreatic cancers.

13. A method for treating a disease associated with the presence of cells having a disease-associated surface antigen in a subject in need thereof, said method comprising:

administering to the subject a therapeutically effective amount of a chimeric pathogenic organism according to claim 1 so as to cause binding of the antibody fragment to the disease-associated antigen on the cells,

thereby treating the disease by triggering infiltration of the chimeric pathogenic organism into the cells without substantial damage to healthy cells.

14. The method of claim 13, wherein the antibody fragment is a single chain antibody.

15. The method of claim 13, wherein the antibody fragment binds to an antigen on a tumor cell.

16. The method of claim 15, wherein the disease-associated antigen is contained in an abnormal surface protein of the tumor cell.

17. The method of claim 16, wherein the antigen is selected from the group consisting of GAG-72, ERBB2, EGP-2, CEA, CD44, I-FR, neu, and the Lewis (Y) tumor associated antigen.

18. The method of claim 15, wherein the tumor cell is selected from the group consisting of adenocarcinoma of colon, ovary or breast; cervical nonmucinous ovarian carcinoma; and breast, ovarian , colorectal, and pancreatic cancers.

19. The method of claim 15, wherein the antigen is a tumor marker.

20. The method of claim 19, wherein the method further comprises administering to the subject a therapeutic amount of an immunosuppressive agent.

21. The method of claim 20, wherein the immunosuppressive agent is selected from the group consisting of cyclosporin A, OKT3, FK506, mycophenolate mofetil (MMF), azathioprine, a corticosteroid, an antilymphocyte globulin, and an antithymocyte globulin.

22. A method for generating a chimeric therapeutic organism from a pathogenic organism that possesses in the wild-type an integrin-like protein with an I domain, said method comprising:

replacing the I domain in the integrin-like protein of the pathogenic organism with an antibody fragment that binds to a disease-associated antigen on a diseased cell;

wherein the wild-type pathogenic organism undergoes virulent transformation by binding of the I domain of the surface integrin-like protein to a cell, and wherein the chimeric therapeutic organism undergoes virulent transformation by binding of the antibody fragment to the disease-associated antigen on the cell.

23. The method of claim 22, wherein the pathogenic organism is C. albicans and wherein the method further comprises disabling the wild-type CAFTR gene in the *C. albicans*, and

introducing a DNA construct comprising a wild-type CAFTR gene under the control of a EFG1p response element,

wherein binding of the antibody fragment to the disease-associated antigen triggers expression of the CAFTR gene in the DNA construct and filamentous transformation in the chimeric pathogenic *C. albicans*.

24. The method of claim 23, wherein the antibody fragment is a single chain antibody.

25. The method of claim 23, wherein the antibody fragment binds to an antigen on a tumor cell.

26. The method of claim 25, wherein the disease-associated antigen is contained in an abnormal surface protein of the tumor cell.